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## Genetic censusing suggests unexpectedly sizable numbers of chimpanzees (*Pan troglodytes schweinfurthii*) living in forest fragments in western Uganda

Many chimpanzee populations today inhabit fragmented and degraded forests outside protected areas. In western Uganda, eastern chimpanzees are distributed among largely unprotected forest fragments in a human-dominated landscape between the Budongo and Bugoma forest blocks. Though this region has been identified as a potential wildlife corridor for chimpanzees and other species, little is known regarding the distributions of unhabituated primate populations in this area. We noninvasively collected 865 fecal samples for 15 months over a period of 2 years across more than 600 $km^2$, and successfully genotyped 662 (77%) at 14 microsatellite loci. These genotypes were attributed to 196 chimpanzees, with an average of 3.35 captures per individual. We obtained a genetic mark-recapture population size estimate of 232 individuals (95% confidence interval: 212 – 268 individuals). This estimate is over three times greater than a previous estimate based on nest count surveys, which are suspected to underestimate population sizes. The spatial clustering of co-sampled genotypes suggests at least 10 communities in the area with 5 to 63 individuals per community. These putative communities are further supported by the geographic distribution of 14 Y-chromosome haplotypes defined by genotyping of 8 Y-chromosome microsatellites. Specifically, haplotypes are often shared by geographically proximate males and closely related haplotypes often appear in geographic proximity. These findings demonstrate that, despite habitat fragmentation, a substantial number of chimpanzees remain widely distributed in this region. Their continued persistence remains uncertain, however, if habitat loss and fragmentation continue unabated.